

Daily Report

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Intro

Yesterday I got a terrible stomachache so there was almost no progress on my work. This morning I did a survey on the UI design tools and prepared a presentation in the seminar for the coming Milestone 1. It seems that there should be some more further discussion about detail of what we will finish in our first milestone.

Attic Framework

After discussion with Xie Cong, there are some modifications on the binding action. The concept of “relation” should be modeled as a modifiable entity between data and visual objects because it is always necessary to bind not the attribute of raw data itself but attributes after aggregation. Therefore, a module called “relation” is needed as a data filter before binding to a visual object.

This week I will make a plan with more details on TODOs in the milestone 1 as well as an initial time schedule.

Research

These days I got stuck on this project for I . I collected some latest papers on community detection, extraction and evolution this evening to find what kind of problems are needed to be further investigated and solved in our project. [1] is one of the latest work on community discovery on heterogeneous network. In this paper some challenges are mentioned that we might be able to solve in visual analysis way:

- As the community evolution is involved in our project, it is necessary to analyze the trend and patterns of a community of a batch of nodes that evolved along the time dimension, which means there might be some further study of previous work on dynamic network visualization. Wang Fei’s report in today’s seminar also covered dynamic network visualization, which I plan to did a brief survey later. However for the main contribution of community discovery, this point is just one part of the analysis.
- When a kind of connections changes, other related connections might change at the same time. For example, in the mobile network, communications between users may contain phone calls and SMS. It is quite possible that two users have both kinds of communications at the same period of time. So it is quite essential to analyze the connection relation as well as multi-dimensional attributes of nodes and edges.

For our project, the major contribution should still focus on how to analyze the communities in a heterogeneous network with multi-dimensional attributes, but not just dynamic network visualization or simply sensemaking of heterogeneous network.

References

- [1] L. Tang, H. Liu, and J. Zhang, “Identifying Evolving Groups in Dynamic Multimode Networks,” *IEEE Transactions on Knowledge and Data Engineering*, vol. 24, pp. 72–85, Jan. 2012.